

ABSTRACT

A process is described for the recovery of acrylonitrile from an ammonoxidation reactor effluent stream containing acrylonitrile, water, and organic impurities. The process includes the steps of (a) quenching an ammonoxidation reactor effluent stream that includes acrylonitrile, water, and organic impurities with an aqueous quench stream, thereby producing a cooled reactor effluent stream; (b) passing the cooled reactor effluent stream through an absorption column, thereby generating an absorber bottoms stream that includes water, acrylonitrile, and organic impurities; and (c) passing the absorber bottoms stream through a single recovery/stripper column, generating an acrylonitrile-rich overhead stream, a lean water side stream, and a recovery/stripper bottoms stream that includes organic impurities. The acrylonitrile-rich overhead stream can be passed through a decanter to separate water from acrylonitrile. The lean water side stream can be recycled for use in the absorption column.

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